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An Analytical Framework for MIMO-OFDM systems with Adaptive Peak Amplitude Suppression

Abstract: Multiple-input multiple-output (MIMO) technology is considered as an effective approach to increase spectrum efficiency in wireless communications. Multi-carrier modulation techniques such as orthogonal frequency division multiplexing (OFDM) are widely investigated with MIMO systems for broadband communication over a frequency-selective fading channel. However, one of the major drawbacks in OFDM based systems is its high peak-to-average power ratio (PAPR). In this talk, an analytical framework for MIMO OFDM systems with a peak amplitude suppression scheme is presented. The results clarified theoretical relationship between PAPR and achievable BER in MIMO-OFDM systems with peak power suppression.

Biography: Osamu Muta received a B.E. degree from Ehime University, Ehime, Japan, in 1996, an M.E. degree from Kyushu Institute of Technology, Fukuoka, Japan, in 1998, and a Ph.D. degree from Kyushu University, Fukuoka, Japan in 2001. In 2001, he joined the Graduate School of Information Science and Electrical Engineering, Kyushu University as an assistant professor. Since 2010, he has been an associate professor in Center for Japan-Egypt Cooperation in Science and Technology, Kyushu University. His current research interests include signal transmission processing techniques for high-speed wireless communications and power-line communications, and nonlinear distortion compensation techniques for high-power amplifiers. He received the 2005 Active Research Award for excellent presentation from IEICE Radio Communication Systems.